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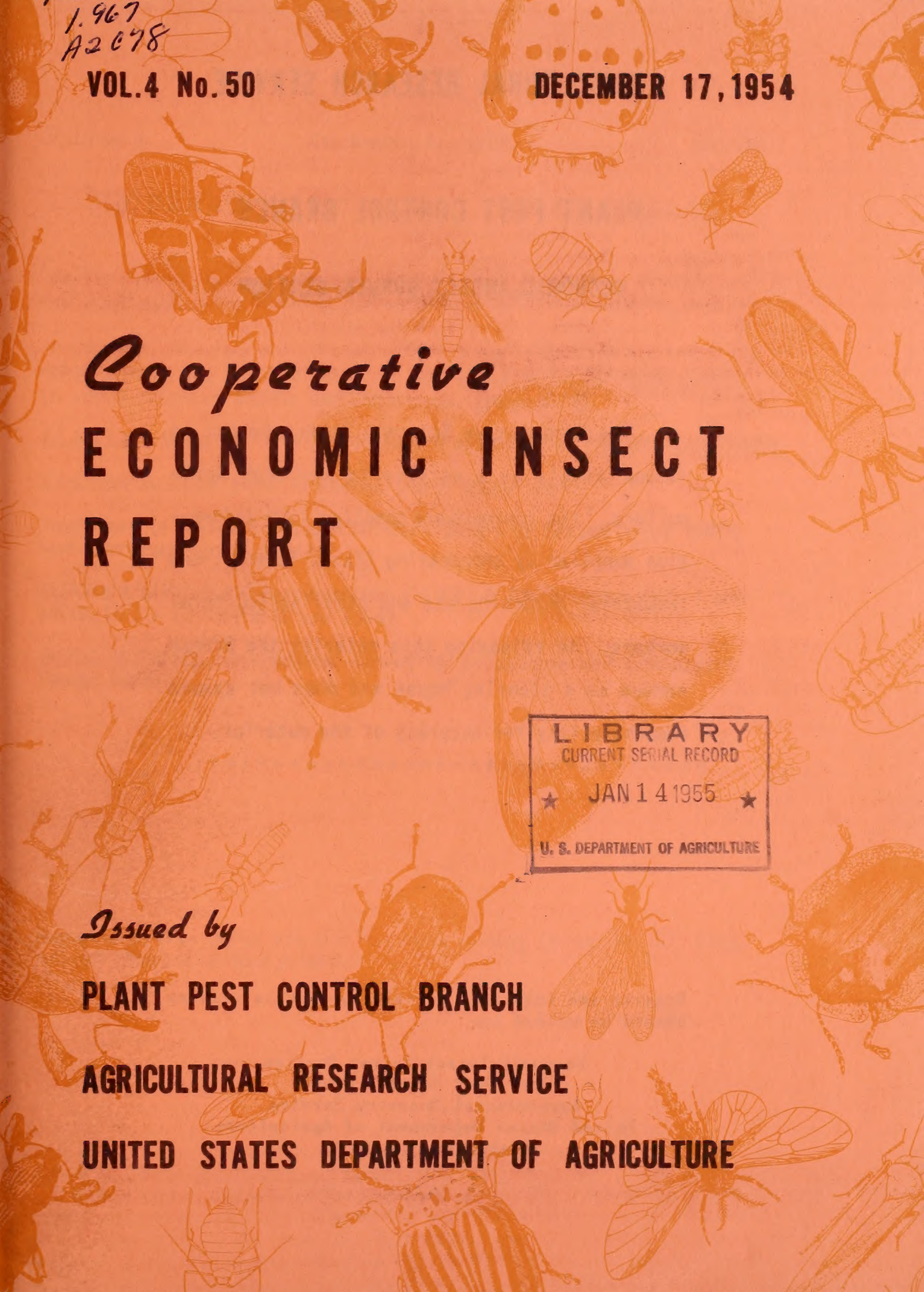

VOL.4 No. 50 DECEMBER 17, 1954

Cooperative ECONOMIC INSECT REPORT

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U. S. DEPARTMENT OF AGRICULTURE

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PLANT PEST CONTROL BRANCH

AGRICULTURAL RESEARCH SERVICE

UNITED STATES DEPARTMENT OF AGRICULTURE

AGRICULTURAL RESEARCH SERVICE

PLANT PEST CONTROL BRANCH

ECONOMIC INSECT SURVEY SECTION

The Cooperative Economic Insect Report is issued weekly as a service to American Agriculture. Its contents are compiled from information supplied by cooperating State, Federal, and industrial entomologists and other agricultural workers. In releasing this material the Branch serves as a clearing house and does not assume responsibility for accuracy of the material.

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Economic Insect Survey Section
Plant Pest Control Branch
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Volume 4 December 17, 1954 No. 50

COOPERATIVE ECONOMIC INSECT REPORT

Highlights of Insect Conditions

GREENBUG and BROWN WHEAT MITE situation in small grains in some areas of Texas and Oklahoma. (page 1079).

ALFALFA WEEVIL damage in Maryland in 1954 (map). (page 1080).

LOCUST BORER reported from Utah. (page 1084).

Summary of INSECT CONDITIONS - 1954 - in Maine (page 1086) and Maryland (page 1086).

SURVEY METHODS for counting CATTLE LICE (page 1093) and MOSQUITO LARVAE (page 1094).

BOLL WEEVIL hibernation survey in Tennessee and Louisiana. (page 1083).

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Reports in this issue are for the week ending December 10, 1954, unless otherwise designated.

WEATHER FOR THE WEEK ENDING December 14, 1954

The week was colder than normal east of the Mississippi, with average weekly departures from normal exceeding 6 degrees in the lower Appalachians and South Atlantic States. Freezing extended southward to Lake Charles, La., and Jacksonville, Fla., on the 7th. Frost which occurred in northern interior sections of Florida on the 4th, 7th, and 8th extended well into the central interior counties on the 7th when cucumbers, ferns, and ornamental plants were badly damaged. In other parts of the South freezing caused little or no damage, but slowed vegetable growth. On the basis of weekly averages the weather has been abnormally cool in the Southeast since mid-October, except for the week ending November 22 which was unusually warm over virtually the entire Nation. The week was also a little cooler than normal in the Pacific States and the central Great Basin, but warmer than normal in the Rocky Mountain region and much above in the extreme northern Great Plains. Subzero minima occurred in the upper Mississippi Valley on the 6th and 10th and in the upper Great Lakes region on the 7th.

Precipitation was general from the Mississippi Valley eastward on the 8th, 9th, 11th, and 12th, and also in the eastern portion of the lower Great Plains during the latter period. Weekly totals, exceeding an inch from southeastern Oklahoma and extreme eastern Texas to the lower Ohio Valley, and in the central Gulf Coastal areas, and over one-half inch over the Southeast, furnished much-needed topsoil moisture which will benefit fall crops. Weekly totals also exceeded an inch along the Pacific Coast above Los Angeles and in a few localities of the Rocky Mountains. Nearly all precipitation west of the Continental Divide occurred during a frontal passage on the 9th and 10th. In the western portions of the Great Plains very light or no precipitation at all continued the drought situation there, and in much of the lower portion the soil is loose and susceptible to wind erosion.

Precipitation in northern interior areas was nearly all in the form of snow. Snowfall in the Cascade Mountains increased the accumulations at Mt. Baker Lodge, Wash., from 25 to 54 inches and at Crater Lake, Ore. from 21 to 27 inches. In the Sierra Nevada Mts., Soda Springs, Calif., reported a depth of 48 inches, an increase of 12 inches during the week. In the Rocky Mts. increases generally were not more than a few inches. Some mountain stations in Arizona and New Mexico, where the ground was bare previous to last week, now report depths of 5 to 7 inches. Snowfall east of the Rocky Mountains was generally light, although frequent in the Great Lakes region, and the extent and depth of the northern snowcover was about the same as at the end of the previous week, with depths ranging up to more than 6 inches at a few stations in the upper Miss. Valley and up to a foot or more in northern Maine. Freezing rain and sleet in the upper Miss. Valley on the 11th made roads slippery, which resulted in some traffic delay and numerous accidents. (Summary Supplied by U. S. Weather Bureau).

CEREAL AND FORAGE INSECTS

GREENBUG (*Toxoptera graminum*) - TEXAS - Of 24 fields surveyed in 14 eastern Panhahdle counties, all but 4 found infested. Infestations mostly light to medium with heaviest in irrigated fields between Tulia and Silverton averaging from 20 to 50 greenbugs per linear foot. Greenbugs found in Carson, Gray, Lipscomb, Ochiltree, Hansford, Potter, Randall, Swisher, Briscoe, Floyd, Crosby and Hale Counties. Predators, especially nabids, were very numerous except in those fields of heaviest infestations. (Ashdown, Cleveland, Dec. 3.). OKLAHOMA - Populations measured in 14 central, west-central and southwestern counties and non-economic numbers found in only 3 of 40 fields examined. These were located in Logan, Cimarron, and Texas Counties. (Henderson, Nov. 17-20).

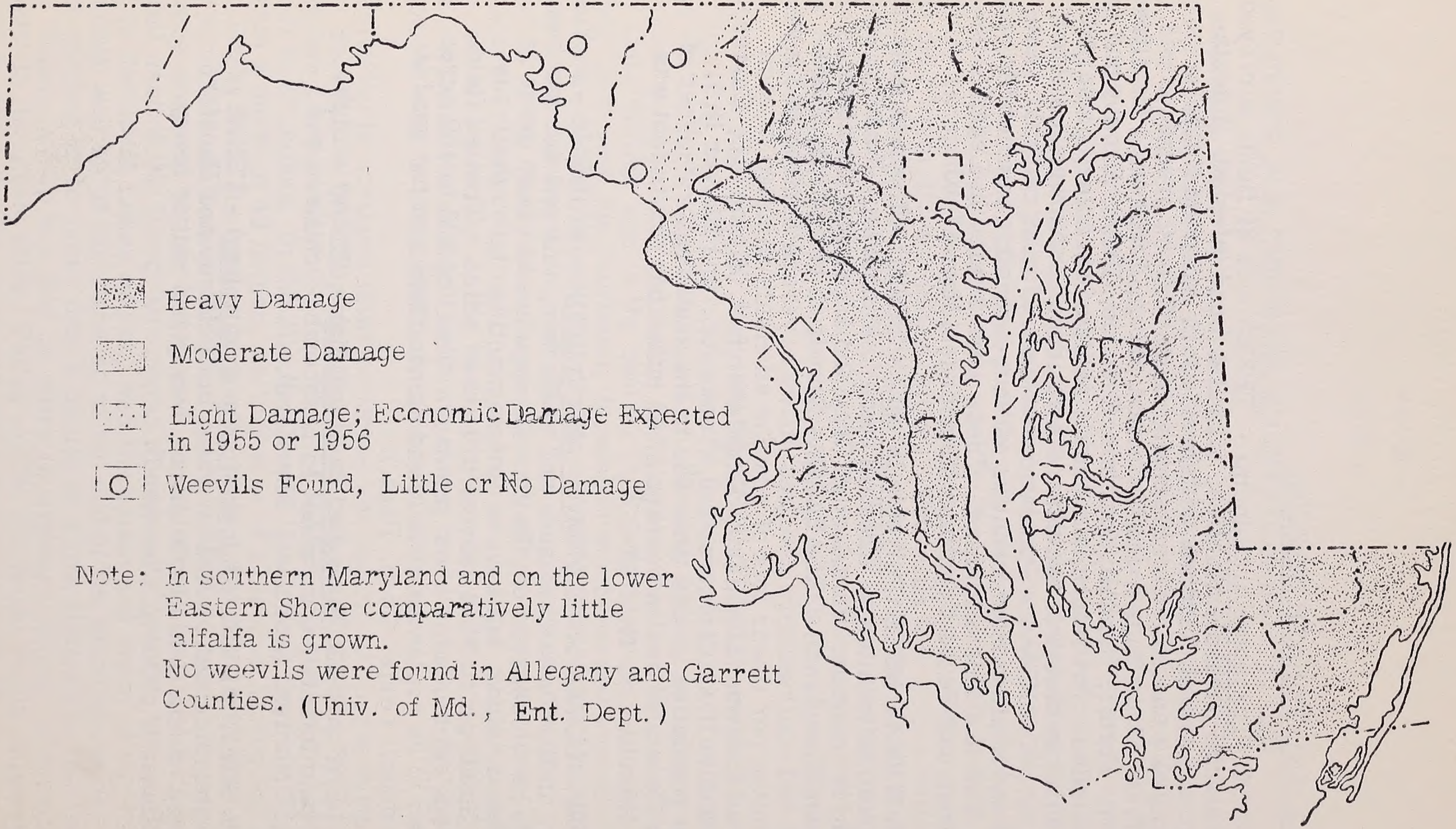
BROWN WHEAT MITE (*Petrobia latens*) - TEXAS - Light to medium widespread infestation on wheat in eastern Panhandle. Found in 24 fields in 14 counties. Heaviest in Gray and Lipscomb Counties. (Ashdown, Cleveland). OKLAHOMA - Survey in 14 central, west-central and southwestern counties showed average number of brown wheat mites per linear foot of row for all fields sampled in each county as follows: Logan 0.2, Kingfisher 5.4, Blaine 0.8, Custer 9.0, Washita 11.4, Cimarron 1.9, Texas 7.6, and Beaver 11.4. Highest population at this time was in the southwestern corner of Beaver County where an average of 46 mites per linear foot was found. (Henderson, Nov. 17-20).

YELLOW CLOVER APHID (*Myzocallis trifolii*) - ARIZONA - In Yuma County, in the Yuma-Roll area and at Parker, this species has been found to be widespread on alfalfa. Damage has not been great on established stands, but severe on new plantings throughout the area. Small plants (2-4 leaves) have been killed. Treated fields have been reinfested in about ten days. Total of 300 to 400 acres have had to be replanted at Roll and stands there are not good in many cases. (Ariz. Coop. Rept.).

CORN LEAF APHID (*Rhopalosiphum maidis*) - TEXAS - Light widespread infestation on wheat in Lipscomb, Ochiltree and Randall Counties. (Ashdown, Cleveland).

APPLE GRAIN APHID (*Rhopalosiphum prunifoliae*) - TEXAS - Light to medium infestation on wheat in Ochiltree and Hansford Counties. Some fields in Ochiltree County had rather heavy populations. (Ashdown, Cleveland).

EXTENT OF DAMAGE BY THE ALFALFA WEEVIL IN MARYLAND 1954



▩ Heavy Damage

▨ Moderate Damage

⋯ Light Damage; Economic Damage Expected in 1955 or 1956

○ Weevils Found, Little or No Damage

Note: In southern Maryland and on the lower Eastern Shore comparatively little alfalfa is grown.
No weevils were found in Allegany and Garrett Counties. (Univ. of Md., Ent. Dept.)

RHODES-GRASS SCALE (Antonina graminis) - FLORIDA - Nymphs and adults causing very light infestations on Bermuda grass and pangola grass at Davie, Broward County. (Link).

FLEA BEETLES (Chaetocnema sp.) - TEXAS - Medium to heavy local infestation on barley in Bexar County. (Crouch).

LEAFHOPPERS - TEXAS - Light widespread infestation on wheat in eastern Panhandle. Found in 24 fields in 14 counties. (Ashdown, Cleveland).

A WINTER GRAIN MITE (Penthaleus major) - TEXAS - Light to medium widespread infestation on small grain in Dallas County, heavier in southern part. (Milikien).

FRUIT INSECTS

A CATERPILLAR (Tortrix sp.) - ARIZONA - Noticed on citrus in a few places on Yuma Mesa. Not severe but first record of this insect in the region. (Ariz. Coop. Rept.).

APPLE and THORN SKELETONIZER (Anthophila pariana) - WASHINGTON - The leaf skeletonizer reported in CEIR 4(39):886 has been identified as this species by J. F. G. Clarke. Specimens collected were 50 percent parasitized by Triclistus pygmaeus (det. L. M. Walkley). (Johansen).

PURPLE SCALE (Lepidosaphes beckii) - FLORIDA - Average infestation in citrus is exceptionally high for December. Ninety-six percent of groves checked were infested. (Pratt, Thompson, Johnson).

CITRUS RUST MITE (Phyllocoptruta oleivora) - FLORIDA - Activity increased on both leaves and fruit. Seventy-six percent of groves infested first week in December. Some further increase is expected, but activity is not believed to go much higher. (Pratt, Thompson, Johnson).

AN AVOCADO SEED WEEVIL (Heilipus lauri) - CALIFORNIA - One adult collected on an avocado seedling in a greenhouse in Los Angeles November 8 and another specimen, a larva, November 16. This is a Mexican and Central American weevil which attacks developing fruit. This is not the first occurrence of the insect in California since specimens were taken in 1911 in Ontario and Whittier. (Keifer).

AVOCADO RED MITE (*Paratetranychus yothersi*) - FLORIDA - Up to a dozen per square inch of leaf on avocado trees in Dade County. These mites increasing as usual for time of year. Red leaves (infested ones) are becoming more and more evident. Control measures being taken. (Wolfenbarger).

TRUCK CROP INSECTS

CABBAGE LOOPER (*Trichoplusia ni*) - ARIZONA - Not yet serious on lettuce at Yuma. Most growers treat where there is one larva per 10 plants. (Ariz. Coop. Rept.). TEXAS - Medium to heavy widespread infestation on cabbage, broccoli and lettuce in Rio Grande Valley. (Wene).

HARLEQUIN BUG (*Murgantia histrionica*) - TEXAS - Medium to heavy widespread infestation on turnip greens in Rio Grande Valley. (Wene).

LEAF MINERS (*Liriomyza* sp.) - TEXAS - Light widespread infestation on tomatoes in Rio Grande Valley. Most growers carrying out control measures. (Wene).

BEET ARMYWORM (*Laphygma exigua*) - ARIZONA - Has been attacking peas on Yuma Mesa, feeding on terminal growth. (Ariz. Coop. Rept.).

SOUTHERN GARDEN LEAFHOPPER (*Empoasca solana*) - TEXAS - Heavy widespread infestation on potatoes and spinach in Rio Grande Valley. (Wene).

COTTON INSECTS

PINK BOLLWORM (*Pectinophora gossypiella*) - NEW MEXICO - Final gin trash inspection results in Dona Ana County show that pink bollworm was found at rate of 4.03 this year compared with .67 in 1953 and .21 in 1952. In all counties in New Mexico where inspection was performed in both 1953 and 1954, number of pink bollworm found per bushel of trash inspected shows increase this year over 1953. ARIZONA - Within regulated area of Arizona pink bollworm has been found at rate of .023 this season compared with .008 in 1953 and .091 in 1952. Slight increase in Cochise and Greenlee Counties over last year. One pink bollworm has been found in Pima County this year but none found in 1953. (PBW Cont. Proj., Nov. 16-30).

Boll Weevil Hibernation Counts

TENNESSEE - Results of this year's fall trash examination in McNairy County indicate that there is an average of 311. 2 live weevils per acre which is considerably higher than in 1953 when 31. 1 live weevils per acre were found. There was an average of 239. 4 weevils per acre in 1951 and 2, 259. 9 in 1952. Other insects found in rather large numbers were Fuller rose beetle (Pantomorus godmani) and strawberry crown borer (Tyloderma fragariae) . (Locke).

LOUISIANA - Surface or ground trash collections and examinations in Madison Parish were completed November 24. The number of live weevils per acre found per point (10 samples) ranged from 242 to 7, 502. The average was 2, 686. The average number found during the fall of 1954 was about 1. 1 times average found during past 18 years. There were only 6 years (1942, 1945, 1946, 1949, 1950, and 1953) in which a greater number was found than in 1954. (Gaines et al). In addition to the survey in Madison Parish, samples were taken in several other locations this year. No comparison data for former years are available for the points outside Madison Parish. The table below summarizes the trash examinations in Louisiana for the fall of 1954.

Locality	Parish	Number of Samples Collected & Examined*	Live Weevils		Samples Collected by
			Number	Per Acre	
Tallulah	Madison	200	222	2, 686	Gaines et al
Bosco, pt. #1	Ouachita	10	7	1, 694	Burns and Roussel
Bosco, pt. #2	"	10	2	484	Burns and Roussel
Sunset, pt. #1	St. Landry	10	1	242	Burns
Rosa, pt. #2	"	10	6	1, 452	Burns
Bunkie, pt. #1	Avoyelles	10	3	726	Burns
Bunkie, pt. #2	"	10	30	7, 260	Burns
Coushatta, pt. #1	Red River	10	2	484	Burns
Coushatta, pt. #2	"	10	6	1, 452	Burns
Bossier City, pt. #1	Bossier	10	4	968	Burns
Bossier City, pt. #2	"	10	3	726	Burns

* Each sample was 18 square feet. All samples examined at Tallulah, La.

FOREST, ORNAMENTAL AND SHADE TREE INSECTS

COTTONY CUSHION SCALE (*Icerya purchasi*) - TEXAS - Medium local infestation mimosa trees in Orange County. (Garner).

LOCUST BORER (*Megacyllene robiniae*) - UTAH - Specimens brought into county agent's office at Salt Lake City about September 8. Det. G. B. Vogt. (Knowlton, Parrish). As far as can be determined this is a new record for Utah.

A SCALE INSECT - TEXAS - Heavy local infestation on junipers in Jack County. (Hulsey).

INSECTS AFFECTING MAN and ANIMALS

BROWN-BANDED ROACH (*Supella supellectilium*) - MARYLAND - Troubling homemakers in Baltimore, Frederick and Prince Georges Counties. (U. Md., Ent. Dept.).

MISCELLANEOUS INSECTS

ROUND HEADED BORERS (*Callidium* sp.) - UTAH - Damaging recently-sawed lumber in Heber City October 1. Det. W. H. Anderson. (Knowlton, Parrish).

STORED-PRODUCTS INSECTS

SWEETPOTATO WEEVIL (*Cylas formicarius elegantulus*) - TEXAS - Medium to heavy infestation locally on stored sweetpotatoes in Madison County. (Garrett).

A MITE (*Raphignathus* sp n. det. F. M. Summers) - ARIZONA - Very numerous on stored barley at Roll in early October. This mite is not known to be a plant pest. (Ariz. Coop. Rept.).

RECENT IMPORTANT INTERCEPTIONS AT PORTS OF ENTRY

Of unusual interest recently was the interception of living fruit fly larvae in fresh fruit in the mails from Guam. Seven living larvae of the oriental fruit fly (Dacus dorsalis) were taken from 6 guavas in a parcel post package containing 53 fruits at San Pedro, California (Lindsay). The parcel was intended for delivery in Chula Vista, California. Sixty living larvae, identified as species of Tephritidae were taken from a mango in a package containing 7 fruits at Seattle, Washington. (Pike).

Other recent interceptions of the oriental fruit fly include the following taken in Hawaii in plant material en route to the United States: in the mails at the Honolulu Post Office, 9 living larvae in mangoes (1 interception) and 22 larvae in coffee berries (3 interceptions) (Laoki, Akoki); and in airplane baggage at the Honolulu Airport, 28 larvae in coffee berries (3 interceptions) (Mattina, Wakefield) and 5 larvae in mountain apple fruit (1 interception). (Mason). (Plant Quarantine Branch).

SUMMARY OF INSECT CONDITIONS - 1954

MAINE

Reported by F. H. Lathrop,
F. N. Mosher

ARMYWORM (*Pseudaletia unipuncta*) -- A great outbreak occurred through most of the farming sections of Maine. Considerable damage was done to grass, small grains, and corn during July. EUROPEAN CORN BORER (*Pyrausta nubilalis*) infestation generally was light to moderate. GARDEN SLUGS were exceptionally numerous and troublesome, probably because of the frequent rains through the summer. TARNISHED PLANT BUG (*Lygus lineolaris*) was more abundant and destructive than usual. APHID infestation on potatoes generally was light through the summer. BLUEBERRY FRUIT FLY generally was kept under control, in spite of frequent rains that hampered dust applications. GYPSY MOTH (*Porthetria dispar*) --Severe infestation continued throughout southern and eastern Maine. Aerial spraying of 27,590 acres of woodland, under the supervision of the Maine Forest Service, resulted in a high degree of control on the sprayed areas. SPRUCE BUDWORM (*Choristoneura fumiferana*) - 21,000 acres of infested woodland, in northern Aroostook County, was sprayed under the supervision of the Maine Forest Service. EASTERN TENT CATERPILLAR (*Malacosoma americanum*) - Severe infestation occurred in southern Maine, generally light to moderate in other parts of the State. SATIN MOTH (*Stilpnotia salicis*) defoliated poplars in central and northern Maine. EUROPEAN EARWIG (*Forficula auricularia*) was reported for the first time in Maine, in Eliot and York, by Maine Forest Service.

SUMMARY OF INSECT CONDITIONS - 1954

MARYLAND

Compiled by W. C. Harding,
T. L. Bissell

Important and New Insects During 1954

ALFALFA WEEVIL (*Hypera postica*) - Again this insect, which was first reported in Maryland in 1952, caused heavy losses of alfalfa in many counties. Heavy damage to the first cutting was evident from Carroll County around the Bay to Talbot County on the Eastern Shore. All but two counties, Allegany and Garrett, were infested. New counties found to have the weevil were Somerset, St. Marys and Washington. Carroll County had heavy damage for first time. In eastern Frederick County damage was light but heavier damage is expected in this county in 1955. It is estimated from one quarter to one half of the first cutting was lost to the weevil. In some instances the second growth was held back by adult feeding. More and more alfalfa growers are spraying to control this pest. PEA APHID (Macrosiphum pisi) was a definite problem on alfalfa in 1954. In the spring damage was apparent throughout State, being heaviest in central Maryland and on the Eastern Shore. At peak of aphid population the latter part of April it was not uncommon to obtain over 1,000 per sweep in many fields. A fungus disease, which spread rapidly during second and third week in May, greatly reduced populations. Spraying, however, was general as the disease did not clean up the infestation before serious damage was done. The pea aphid also was serious on canning peas on the Eastern Shore and central Maryland and sprays were required for control. LESSER CLOVER LEAF WEEVIL (Hypera nigrirostris) larvae did considerable damage to red clover in Harford, Howard and Kent Counties during May and June. Leaf bracts and crowns were damaged giving the crop a stunted appearance.

STRAWBERRY SPIDER MITE (Tetranychus atlanticus) injured red and Ladino clovers in central Maryland in early June. Soybeans on the Eastern Shore were heavily attacked in August and early September. CORN EARWORM (Heliothis armigera) - This annually important pest was more than normally serious in 1954. Not only did it seriously damage the early and late sweet corn canning crop, but also pods of late snap and lima beans, especially on the Eastern Shore. Many growers had to spray to control this pest. CODLING MOTH (Carpocapsa pomonella) - The second and partial third brood caused more damage to apples than at any time since 1945. This unusually heavy damage was attributed to poor control near the end of the first brood, which extended later than usual, and to the extremely hot and dry weather. BOXELDER BUG (Leptocoris trivittatus) - An unusual outbreak occurred during fall. Numerous calls and letters were received about this bug gathering on and entering houses. EUROPEAN PINE SHOOT MOTH (Rhyacionia buoliana) - A localized infestation was reported from Allegany County. This is the first official record of this pest being in Maryland.

Other Insects by Crops

Corn and Grain: CUTWORMS, WIREWORMS, BILLBUGS, SOD WEBWORM and FLEA BEETLES did considerable damage over the State to newly-sprouted corn. In many areas it seems as though it would have paid to use an insecticide before planting. EUROPEAN CORN BORER (Pyrausta nubilalis) infestations were low in practically all sections. Damage at the canneries as in 1953 was negligible. The 1954 fall population according to the annual survey was lower than in

1953. The highest populations being in Washington County and on the lower Eastern Shore. SAP BEETLE infestations, in harvested sweet corn, ranged from light to heavy. FALL ARMYWORM (*Laphygma frugiperda*) infestations were about normal with the late sweet corn crop being damaged in many areas. CORN LEAF APHID (*Rhopalosiphum maidis* was quite heavy over the State on field corn during August and September. ARMYWORM (*Pseudaletia unipuncta*) did light to moderate damage to barley and oats on the Eastern Shore during May and June. In southern Maryland, St. Marys County had a serious outbreak in early June on grain and young corn. As many as 25 per square foot were reported from one locality. In general, however, armyworms were less injurious than in 1953. A sawfly (*Cephus* sp.) infested 75 percent of the wheat stems in one field in Harford County.

Forest, Shade Tree and Ornamentals: WALKINGSTICK (*Diapheromera femorata*) damage to deciduous trees in Allegany County was noticeable, but less than in 1953. CANKERWORMS defoliated oaks and hickories in Allegany and Garrett Counties in May. Also damaged hawthorn, wild cherry and apple leaves in Garrett County. LOCUST LEAF MINER (*Chalepus dorsalis*) seriously defoliated black locust trees over entire State. Extreme defoliation was noticed in central Maryland in July. ELM LEAF BEETLE (*Galerucella xanthomelaena*) was quite severe on elms during the summer in central and southern areas. SYCAMORE LACE BUG (*Corythucha ciliata*) was numerous on sycamores in many localities during June and July. PINE SAWFLIES damaged about 500 acres of loblolly pine in several areas during May. Trees were from 25 to 75 percent defoliated. *Neodiprion americanus* was identified from loblolly in St. Marys County in May and pitch and short leaf pine in Harford County. *Neodiprion pinetum* damaged 15 pine trees in Carroll County in September. An aerial survey during May showed medium to heavy infestations on Virginia pine along the Patuxent River water shed. MIMOSA WEBWORM (*Homadaula albizziae*) caused ugly webbing on mimosa trees over most of State during the summer. EUONYMUS SCALE (*Unaspis euonymi*) generally severe on euonymus and bittersweet. On boxwood BOXWOOD PSYLLID (*Psylla buxi*) was troublesome at College Park in April and BOXWOOD LEAF MINER (*Monarthropalpus buxi*) was serious at Hagerstown in May. Privet hedges at Greenbelt were damaged seriously by THRIPS (*Dendropthrips ornatus*). JAPANESE BEETLE (*Popillia japonica*), in general, is on the decline, but in and around surburban Washington ornamentals, particularly roses, were attacked quite heavily. Southern Maryland, particularly Charles County, experienced heavy numbers of Japanese beetles in late June. NORTHERN MASKED CHAFER (*Cyclocephala borealis*) grubs killed sod at various localities near Baltimore in October.

Fruits and Nuts: ROSY APPLE APHID (Anuraphis roseus) was the most serious on apples than ever in western Maryland. Heavy infestations occurred even in orchards where the dinitro sprays were used. APPLE APHID (Aphis pomi) caused some damage, but not as serious as in 1953. ORCHARD MITES: TWO-SPOTTED SPIDER MITE (Tetranychus bimaculatus) appeared on apples in early May and caused serious damage where control measures not applied. This early occurrence was most unusual as this species usually comes in late July and August. EUROPEAN RED MITE (Metatetranychus ulmi) population was light in the western area. PLUM CURCULIO (Conotrachelus nenuphar) was numerous but damage was negligible in all commercial sprayed apple orchards; however, some damage to peaches on the Eastern Shore. RED-BANDED LEAF ROLLER (Argyrotaenia velutinana) was quite numerous this year; however, good control was obtained in all orchards where the recommended spray schedule was followed. There were serious localized infestations of UNSPOTTED TENTIFORM LEAF MINER (Callisto geminatella) in several apple orchards in western part of State. Some orchards were 50 percent defoliated by harvest time. GRASSHOPPER infestation was extremely light in orchards. APPLE MAGGOT (Rhagoletis pomonella) infested Red Delicious apples at Cumberland in late September. SCALE INSECTS, mostly Forbes scale (Aspidiotus forbesi) occurred on apples in Washington, Frederick, and other counties. Scale insects are increasing, probably due to the reduction in use of oil emulsion in the dormant spray. STRAWBERRY ROOT APHID (Aphis forbesi) infestations were light to heavy on strawberries in Wicomico and Somerset Counties during July. MEADOW SPITTLEBUG (Philaenus leucophthalmus) nymph infestations on strawberries are increasing and were quite general on the lower Eastern Shore. In Wicomico County there was a light infestation of PUTNAM SCALE (Aspidiotus ancylus) on cultivated blueberries in January. SMALL CHESTNUT WEEVIL (Curculio auriger) infested one percent of the Chinese chestnuts harvested at Grasonville.

Hay and Forage Crops: MEADOW SPITTLEBUG - First hatch noticed March 24 on weeds in Queen Annes County. Hatching on alfalfa, clover and hay mixtures general over State during first two weeks in April, except in extreme western counties where they were found the second week in May. Spraying was general from Talbot to Washington Counties, and by a few farmers west to Garrett. High adult populations in late summer indicate that the spittlebug will again be a serious problem on hay in 1955. GRASSHOPPERS were not the problem they were in 1953, however, there was local damage to alfalfa and clover in Montgomery and Frederick Counties during July and August. One extremely heavy infestation was noted on alfalfa at Comus. The species involved were mainly the red-legged, differential, and two-striped grasshoppers. POTATO LEAFHOPPER (Empoasca fabae), in general, was not as bad as in 1953. Infestations on the second and third cuttings of alfalfa seemed to persist longer than in 1953. Damage was noticeable on the Eastern Shore and Montgomery County in early October. CUTWORMS damaged clover pastures in Allegany and Garrett Counties. Other insects that were numerous in alfalfa and clover fields during spring and summer were tarnished plant bug, green cloverworm, pale-striped flea beetle, spotted cucumber beetle, clover root curculio, and clover leaf weevil. It is estimated that hay insects during the year consumed about 50,000 tons of hay, which represents about one and a half million dollars.

Household: Numerous calls concerning the presence of the BLACK WIDOW SPIDER (Latrodectus mactans) were received mostly from the College Park area. TERMITES were reported from many sections of the State, especially southern Maryland and the Eastern Shore. Several other pests also caused concern.

Stored Products: A survey in 5 counties during October and November showed the ANGOUMOIS GRAIN MOTH (Sitotroga cerealella) the most important pest of stored corn, wheat, barley and oats. Fifteen out of 25 bins were infested, with 8 bins showing heavy infestations. Other important pests of stored grain were the granary weevil, confused flour beetle, saw-toothed grain beetle, cadelle, and the lesser grain borer.

Tobacco: Plant bed insects of importance were CUTWORMS, FLEA BEETLES and GREEN JUNE BEETLE. FLEA BEETLES were also troublesome on plants that were newly set in the field. HORNWORMS, BUDWORM and GREEN PEACH APHID were generally light. Some spraying for hornworms. The VEGETABLE WEEVIL (Listroderes costirostris obliquus) damaged tobacco in beds in St. Marys and Calvert Counties. Larvae damaged tender leaves. This insect is not yet a serious pest but should be watched carefully as it damages quite a number of crops in the South.

Man and Animals: The NORTHERN HOUSE MOSQUITO (Culex pipiens) was numerous in Westminster vicinity in September, and the SALT-MARSH MOSQUITO (Aedes sollicitans) was bothersome on lower Eastern Shore. A survey in January and February showed that 46 percent of dairy cattle and 58 percent of the beef cattle had CATTLE GRUBS, ranging from one to forty per animal. A total of 268 animals on 15 farms in 5 counties examined. CATTLE LICE gave trouble in late fall. As usual dairy barns and beef and hog pens were plagued by flies, the predominating species being HOUSE FLY (Musca domestica). FOWL TICK (Argas persicus) was found on chickens in Baltimore County in July and HOG LOUSE (Haematopinus adventicius) was found on hogs in St. Marys County in June.

Vegetables: ASPARAGUS BEETLE (*Crioceris asparagi*) adults were plentiful on commercial plantings in Elkton area in late May. BEAN LEAF BEETLES (*Cerotoma trifurcata*) damaged snap beans in Wicomico and Somerset Counties in early June. MEXICAN BEAN BEETLES (*Epilachna varivestis*) caused light to moderate damage to commercial crop; quite heavy on many home plantings of snap and lima beans. SPOTTED CUCUMBER BEETLE (*Diabrotica undecimpunctata howardi*) damaged snap beans in Somerset County quite heavily; one-third of the plants in one large planting were destroyed early in June. POTATO LEAFHOPPERS were less troublesome this year than in 1953. Other pests that gave trouble on beans were seed-corn maggot, thrips, black bean aphid, two-spotted spider mite, and lesser cornstalk borer which appeared in late plantings for the second year. TOMATO RUSSET MITE (*Vasates lycopersici*) damage was reported from 4 counties; however, this pest was not the problem it was in 1953. HORNWORMS (*Protoparce* spp.) were slightly heavier than normal, and COLORADO POTATO BEETLES (*Leptinotarsa decemlineata*) did heavy damage to both potatoes and tomatoes, especially earlier in the season. VINEGAR GNAT (*Drosophila* sp.) was again serious at canneries in August. FLEA BEETLES were quite numerous and injured young tomato plants on the Eastern Shore. The TOMATO FRUITWORM (*Heliothis armigera*) was light on commercial crops and BLISTER BEETLES did damage especially on home plantings. WIREWORMS infested potatoes on the Eastern Shore; injury from field to field varied from 1 percent to as high as 29 percent, especially bad in dry fields. *Conoderus vespertinus* was involved. Reports also of wireworms damaging sweet potatoes. POTATO TUBERWORM (*Gnorimoschema operculella*) was present in stored potatoes in Calvert and Queen Annes Counties. TORTOISE BEETLES again damaged sweet potato foliage in the Salisbury area. STRIPED CUCUMBER BEETLES (*Acalymma vittata*) damaged cucurbits on the lower Eastern Shore in May and June. SQUASH BUGS (*Anasa tristis*) injured cucurbits in central and southern Maryland in July and August. THRIPS were a problem on cucumbers and cantaloups on the lower Shore as was TWO-SPOTTED SPIDER MITE which damaged cantaloups in July. Infestations of IMPORTED CABBAGEWORMS (*Pieris rapae*) were quite general on cabbage, broccoli and kale, and CABBAGE LOOPER (*Trichoplusia ni*) did serious damage to broccoli on the lower Shore in September and October. HARLEQUIN BUGS (*Murgantia histrionica*) were numerous on kale in Calvert County in June. GREEN PEACH APHID (*Myzus persicae*) was heavy on spinach. During the summer in cooperation with the U. S. D. A., two special surveys were made to determine whether or not the European chafer or white-fringed beetles were present in Maryland. Neither of these pests was found. The 1954 survey for the golden nematode conducted in the principal potato and tomato producing areas of Maryland proved negative.

SURVEY METHODS

Technique for Counting Cattle Lice

1. One square inch samples are taken from the area of infestation either with a straight razor, knife or simply by scraping with the thumb-nail. These are preserved either in AGA or 70 percent alcohol in 2-ounce screw top specimen jars. Samples are labeled as to date, place taken and the species.

2. The first step is to remove the entire sample from the preserving fluid and dissolve all the hair by boiling in 10 percent KOH.

3. When the hair is completely dissolved the sample is transferred to a centrifuge tube and centrifuged until all the lice are brought down. Most of the KOH is then removed by a rubber bulb and pipette. The sample is then washed with water, centrifuged and the water removed to take out as much of the KOH as possible.

4. Water is added to the centrifuge tube and the sample agitated by shaking until all the specimens are suspended. The sample is then poured over a filter paper in a Buchner funnel set over a filter flask. Attachment of the filter flask to a water aspirator pump speeds filtering. Removal of the KOH is essential if successful filtering is obtained.

5. The filter paper on which the lice are caught is divided into 8 segments for easier counting.

6. Sex determinations may be made with the aid of a binocular microscope and males and females removed with a needle to separate Syracuse watch glasses containing AGA or alcohol. Nymphs and eggs are counted directly on the filter paper. A tally counter aids in taking the count.

7. Petri dishes containing filter paper moistened in AGA were found to be excellent for holding over lice collected by the Buchner funnel from day to day or over a week-end. (J. L. Lancaster, Jr.).

Technique for Calculating the Number of Mosquito Larvae Per Acre

Sheet iron cylinders 10-inch long covering 144 square inches (13.5" diameter) were constructed. One half inch mesh hardware cloth was soldered over one end. In making counts the end covered with hardware cloth was at the bottom of the cylinder as it was dropped at random in the water. The purpose of the hardware cloth was to prevent an excessive amount of vegetation extending upward into the cylinder. Then using a six-inch sieve covered with 60 mesh screen, the enclosed water is agitated and the larvae are dipped from the cylinder and counted. The count was considered complete when five successive dippings produced no larvae. Ten such counts were made in the area and the average of these numbers was multiplied by the number of square feet per acre. (F. E. Whitehead).